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Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210

EXAMINER

HARRINGTON, ALICIA M

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/798,841	Applicant(s) TESAR ET AL.	
	Examiner Alicia M. Harrington	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on election filed on 1/10/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-12,14-28,32--55,60,61 is/are rejected.
- 7) ☒ Claim(s) 3,5,13,29-31 and 56-59 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6604</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. The Examiner reevaluated the restriction requirements in view of applicant's arguments and decided to withdraw the restriction requirement. Claims 1-61 will be examined.

Information Disclosure Statement

2. The Examiner has considered the information disclosure statement filed on 6/14/04.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

4. Claim 55 is objected to because of the following informalities: Claim 55, in line 4, the word "on" should be -one-. Appropriate correction is required.
5. Claim 31 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 30. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2873

Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 recites the limitation "each of the step locations" in lines 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 27 will be examined as best understood by the Examiner.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1,4,6,8,9,10,12,17-24,28,32-39,42 are rejected under 35 U.S.C. 102(b) as being anticipated by A. W. Tronnier (US 2,807,983).

Regarding claim 1, Tronnier discloses a lens assembly for imaging an object, the lens assembly comprising:

a plurality of lenses (see figure 1) adapted to provide:

1) a field of view of approximately 40 degrees (see col. 1, lines 10-25); and

2) a distortion of less than approximately 1% (see col. 8, lines 64-67).

Regarding claim 4, Tronnier discloses the lens assembly of claim 1, wherein the lens assembly further comprises:

an aperture stop (B); and

wherein the plurality of lenses is configured symmetrically about the aperture stop (see figure 1).

Art Unit: 2873

Regarding claim 6, Tronnier discloses the lens assembly of claim 1, in combination with an imaging device (see col. 1, lines 10-25).

Regarding claim 8, Tronnier discloses the lens assembly of claim 1, wherein the plurality of lenses comprises:

a first lens group having at least one first lens element (for example L1)), the at least one first lens element having a first surface proximal to the object and a second surface distal to the object; and

a second lens group having at least one second lens element (for example L6), the at least one second lens element having a first surface proximal to the object and second surface distal to the object.

Regarding claim 9, Tronnier discloses the lens assembly of claim 8, further comprising: an aperture stop (B) disposed between the first lens group and the second lens group (see figure 1).

Regarding claim 10, Tronnier discloses the lens assembly of claim 9, wherein the aperture stop has fixed size selectable from a range of aperture stop sizes (see col. 2, lines 1-6).

Regarding claim 12, Tronnier discloses the lens assembly of claim 8, wherein the first and second lens groups (L1 and L6) are arranged to define a focal length, and wherein a distance between the first surface of the at least one first lens element and the second surface of the at least one second lens element is less than approximately 95% of the focal length (see Example 1 in col. 7).

Regarding claim 17, Tronnier discloses the lens assembly of claim 8, further comprising:

a third lens group (for example L2 and L3) having at least one first lens element, the at least one first lens element having a first surface proximal to the object and second surface distal to the

Art Unit: 2873

object; and a fourth lens group (for example L4 and L5) having at least one second lens element, the at least one second lens element having a first surface proximal to the object and a second surface distal to the object.

Regarding claim 18, Tronnier discloses the lens assembly of claim 17, wherein the first, second, third, and fourth lens groups define a double-Gauss-type lens assembly (see col. 2, lines 14-17).

Regarding claim 19, Tronnier discloses the lens assembly of claim 17, further comprising: an aperture stop (B), wherein the aperture stop is disposed between the third lens group (for example L2 and L3) and the fourth lens group (for example L4 and L5- see figure 1).

Regarding claim 20, Tronnier discloses the lens assembly of claim 19, wherein the third lens group (L2, L3) is disposed on a same side relative to the aperture stop (B) as is the first lens group (L1-see figure 1).

Regarding claim 21, Tronnier discloses the lens assembly of claim 20, wherein the third lens group includes a third lens element (L2) and a fourth lens element (L4; see figure 1).

Regarding claim 22, Tronnier discloses the lens assembly of claim 21, wherein the third lens element (L2) is a positive lens element, and the fourth lens element (L3) is a negative lens element (see col. 2 and example 1).

Regarding claim 23, Tronnier discloses the lens assembly of claim 20, wherein the fourth lens group (L4 and L5) includes a fifth lens element (L5) and a sixth lens element (L4).

Regarding claim 24, Tronnier discloses the lens assembly of claim 23, wherein the fifth lens element (L5) is a positive lens element (see col. 2) and the sixth lens element (L4) is a negative lens element.

Art Unit: 2873

Regarding claim 28, Tronnier discloses a lens assembly for imaging an object, the lens assembly comprising: a first lens group having at least one first lens element (L1), the at least one first lens element having a first surface proximal to the object and second surface distal to the object; a second lens group (L6) having at least one second lens element, the at least one second lens element having a first surface proximal to the object and second surface distal to the object; and an aperture stop (B) disposed between the first lens group and the second lens group; wherein the first and second lens groups are arranged to define a focal length, and wherein a distance between the first surface of the at least one first lens element and the second surface of the at least one second lens element is less than approximately 95% of the focal length (see Example 1 in col. 7).

Regarding claim 32, Tronnier discloses the lens assembly of claim 28, further comprising: a third lens group having at least one first lens element (L2 and L3), the at least one first lens element having a first surface proximal to the object and second surface distal to the object; and

a fourth lens group having at least one second lens element, the at least one second lens element having a first surface proximal to the object and second surface distal to the object (L4 and L5).

Regarding claim 33, Tronnier discloses the lens assembly of claim 32, wherein the aperture stop (B) is disposed between the third lens group and the fourth lens group.

Regarding claim 34, Tronnier discloses the lens assembly of claim 33, wherein the third lens group is disposed on a same side relative to the aperture stop as is the first lens group (L1- see figure 1).

Art Unit: 2873

Regarding claim 35, Tronnier discloses the lens assembly of claim 34, wherein the third lens group includes a third lens element and a fourth lens element (L2 and L3).

Regarding claim 36, Tronnier discloses the lens assembly of claim 35, wherein the third lens element is a positive lens element (L2), and the fourth lens element (L3) is a negative lens element.

Regarding claim 37, Tronnier discloses the lens assembly of claim 34, wherein the fourth lens group includes a fifth lens element and a sixth lens element (L4 and L5).

Regarding claim 38, Tronnier discloses the lens assembly of claim 37, wherein the fifth lens element is a positive lens element (L5) and the sixth lens (L4) element is a negative lens element.

Regarding claim 39, Tronnier discloses the lens assembly of claim 32, wherein the first, second, third, and fourth lens groups define a double-Gauss-type lens (see col. 2, lines 5-10).

Regarding claim 42, Tronnier discloses the lens assembly of claim 28, in combination with an imaging device (for example a telescope; also see col. 1, lines 50-70).

9. Claims 55 and 60 are rejected under 35 U.S.C. 102(b) as being anticipated by JR Miles (US 2,894,431).

Regarding claims 55 and 60, Miles discloses a lens system comprising a plurality of lens elements and an aperture stop (B), each lens element having a lens surface defined by a radius of curvature (r), a thickness (T), and an index of refraction (n), the plurality of lens elements being spaced from each other by a distance (h), the lens system satisfying at least **one** of the following conditions (see Example 1):

$1000 < r_4/r_2$ or $r_4 = r_2 = \text{approximately infinity}$ - see table in col. 2;

Art Unit: 2873

$$-0.56 < r3/r9 < -0.81;$$

$$0.9 < r8/r9 < 1.1 \text{ or } r8 = r9\text{-see table in col. 2;}$$

$$0.9 < r10/r11 < 1.1 \text{ or } r10 = r11;$$

$$0.7 < (h1+h2)/(h3+h4) < 1.1;$$

$$0.95 < h1+h2+h3+h4*T1+T2+T3+T4+T5+T6 < F1.02;$$

$$1.71 < nL1, nL2, nL5, nL6 < 1.79; \text{ and}$$

$$1.67 < nL3, nL4 < 1.81.$$

10. Claims 61 is rejected under 35 U.S.C. 102(b) as being anticipated by Ning (US 6,282,033).

Regarding claim 61, Ning discloses a lens assembly comprising a plurality of lens elements (see figure 1 or 3 for example), an aperture stop having a size selected from a plurality of aperture stop sizes, the aperture stop optically cooperating with the plurality of lens elements regardless of the aperture stop size, such that a lens assembler may select an aperture stop for use with the lens assembly with out reconfiguring a physical relationship of the plurality of lenses (see col. 2, lines 45-67)

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 2, 7, 14-16, 40-41, 43, 44, 45-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tronnier (US 2,807,983) in view of Takatsuki (US 2001/0036022).

Art Unit: 2873

Regarding claim 2,7,14-16,40,41,43,44,45,47 Tronnier discloses a Gaussian lens assembly of claim 1, where the lenses are used to compensate for aberration. However, Tronnier fails to specifically disclose at least one filter plate; wherein the plurality of lenses is further adapted to produce at least one aberration to compensate an aberration produced by the at least one filter plate.

In the same field of endeavor, Takatsuki discloses a Gaussian lens assembly in a monitoring camera comprising least one planar filter plate (2) and image plane (1); wherein the plurality of lenses is further adapted to produce at least one aberration to compensate an aberration produced by the at least one filter plate (see figure 2c and sections 3,28 and 38). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a filter plate with Gaussian lens assembly in imaging apparatus, since the filter and lens combination is known in the art of imaging, aberrations and distortions are decreased, and it improves the quality of the output image.

Regarding claim 46, Tronnier and Takatsuki fail to disclose an embodiment where the planar plate is a cover glass plate. However, it is notoriously well known in the art of imaging for an imager in the image plane to have a cover glass plate that acts a filter and/or protective member for the imager. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a planar cover glass to camera imaging system, since it is known in the art of electronic/digital imaging and would reduce the number optical elements (i.e. no need for an extra filter- the imager has one).

Regarding claim 48, Tronnier discloses the lens assembly of claim 1, wherein the plurality of lenses comprises:

Art Unit: 2873

a first lens group having at least one first lens element (for example L1)), the at least one first lens element having a first surface proximal to the object and a second surface distal to the object; and

a second lens group having at least one second lens element (for example L6), the at least one second lens element having a first surface proximal to the object and second surface distal to the object.

Regarding claim 49, Tronnier discloses the lens assembly of claim 8, further comprising: an aperture stop (B) disposed between the first lens group and the second lens group (see figure 1).

Regarding claim 50, Tronnier discloses the lens assembly of claim 9, wherein the aperture stop has fixed size selectable from a range of aperture stop sizes (see col. 2, lines 1-6).

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tronnier (US 2,807,983) in view of Bietry (US 5,646,788).

Regarding claim 11, Tronnier discloses a Gaussian lens assembly with aperture in the airspace between the lens elements. However, Tronnier fails to specifically disclose an embodiment where the aperture stop is physically contacted by at least one lens element of the plurality of lens.

In the same field of endeavor, Bietry teaches a Gaussian lens assembly with an aperture in contact with a lens element (see element 20). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an aperture in physical contact with a lens element in a Gaussian lens assembly as is illustrated by prior art and such

Art Unit: 2873

fixed aperture configuration allows for wide aperture optical systems to produce quality images and still perform correction.

14. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tronnier (US 2,807,983) in view of J Hoogland et al (US 3,504,961).

Regarding claims 25 and 27, Tronnier discloses a modified Gaussian for a camera. The camera inherently includes a housing. However, Tronnier fails to specifically disclose the configuration of the lens housing.

In the same field of endeavor, Hoogland discloses the configuration of a lens housing (12) for a modified Gaussian having step locations (see figure1) the thickness of each location varying to ensure the spacing of the lens. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a housing with steps with ensure spacing of the lenses, as illustrated by Hoogland, so that aberration is favorably corrected and errors due to misalignment of lens will occur in the image.

Regarding claim 26, as discussed above in claim 15, Tronnier fails to specifically disclose the configuration of the lens housing.

In the same field of endeavor, Hoogland discloses the configuration of a lens housing for a modified Gaussian having step location. Hoogland further illustrates flats (smooth sides portion for insertion in a camera). However, Hoogland fails to specially disclose the flats are for affixing a tool thereto. Although, in an apparatus, article, and composition claim, intended use language must result in a structural difference to patentability distinguish over the prior art (see MPEP 211.02, 2112, & In re Schreiber, 44 USPQ2d 1429 (Fed Cir. 1997)).

Art Unit: 2873

15. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tronnier (US 2,807,983) in view of Takatsuki (US 2001/0036022), further in view of Bietry (US 5,646,788). Regarding claim 51, Tronnier and Takatsuki disclose a Gaussian lens assembly with aperture in the airspace between the lens elements. However, Tronnier and Takatsuki fail to specifically disclose an embodiment where the aperture stop is physically contacted by at least one lens element of the plurality of lens.

In the same field of endeavor, Bietry teaches a Gaussian lens assembly with an aperture in contact with a lens element (see element 20). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an aperture in physical contact with a lens element in a Gaussian lens assembly as is illustrated by prior art and such fixed aperture configuration allows for wide aperture optical systems to produce quality images and still perform correction.

16. Claims 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takatsuki (US 2001/0036022) in view of J. R. Miles (US 2,894,431).

Regarding claims 52-53, Takatsuki discloses a Gaussian lens system in order from an objective side a first biconvex lens (11), second meniscus (12), third (biconcave), aperture, a fourth biconcave (14) and fifth bi-concave (15), sixth biconvex (6) and first planar plate (2). However, Takatsuki fails to specifically disclose the claimed arrangement of the front lens group of first meniscus, second planar convex and third planar concave.

In the same field of endeavor, JR Miles discloses Gaussian lens system where front lens group comprises a first positive meniscus (1), second planar convex (2) and third planar concave (3). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention

Art Unit: 2873

was made to modify Takatsuki to include this lens arrangement in the front group to improve the chromatic aberration correction as taught by Miles.

Regarding claim 54, Takasuki and Miles disclose a Gaussian lens assembly with aperture in the airspace between the lens elements. However, they fail to specifically disclose an embodiment where the aperture stop is physically contacted by each of the third and fourth lens element of the plurality of lens.

An aperture in contact with more than one element is dependent upon the spatial distance from the object plane to image plane and distances between the lenses. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an aperture in physical contact with each third and fourth lens element in a Gaussian lens assembly as fixed aperture configuration allows for a more compact wide aperture optical systems that produces quality images and still performs correction.

Allowable Subject Matter

17. Claims 3, 5, 13, 29, 30, 56-58, 59 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 3, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features

Art Unit: 2873

as presented in independent claims, which at least include the lens assembly of claim 1, wherein the plurality of lenses is further adapted to provide a ratio of the length of the lens assembly to the back focal Length of approximately 1.39 as claimed.

Regarding claim 5,13 and 29, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include wherein the plurality of lenses is arranged to define a total length, the total length is between approximately .95 and approximately 1.02 of the focal length.

Regarding claim 30, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include wherein the aperture stop disposed between the first lens group and the second lens group has an aperture stop size selected from a plurality of aperture stop sizes as claimed.

Regarding claim 56, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include a focal length of approximately 10mm as claimed.

Regarding claim 57, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C

Art Unit: 2873

102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include an aperture stop having size selected from a plurality of aperture stop sizes.

Regarding claim 59, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include the lens system satisfying each of the conditions as claimed.

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Harrington whose telephone number is 571 272 2330. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571 272 2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alicia M Harrington

Application/Control Number: 10/798,841

Page 16

Art Unit: 2873


AMH

Examiner
Art Unit 2873